Microsoft

# The Manufacturer's Guide to Digital Transformation

Four key topics to enable your intelligent manufacturing transformation

Manufacturing a better future

There is a growing skills gap and talent shortage in the workforce. Environmental sustainability has become imperative for manufacturing customers. Fortunately, advances in technology give us the opportunity to impact our people, society, and planet for good.

Manufacturers globally are being disrupted and moving from making products to delivering products-as-a-service. To compete and grow, manufacturing companies need to shift their focus from engineering and production to customer outcomes.
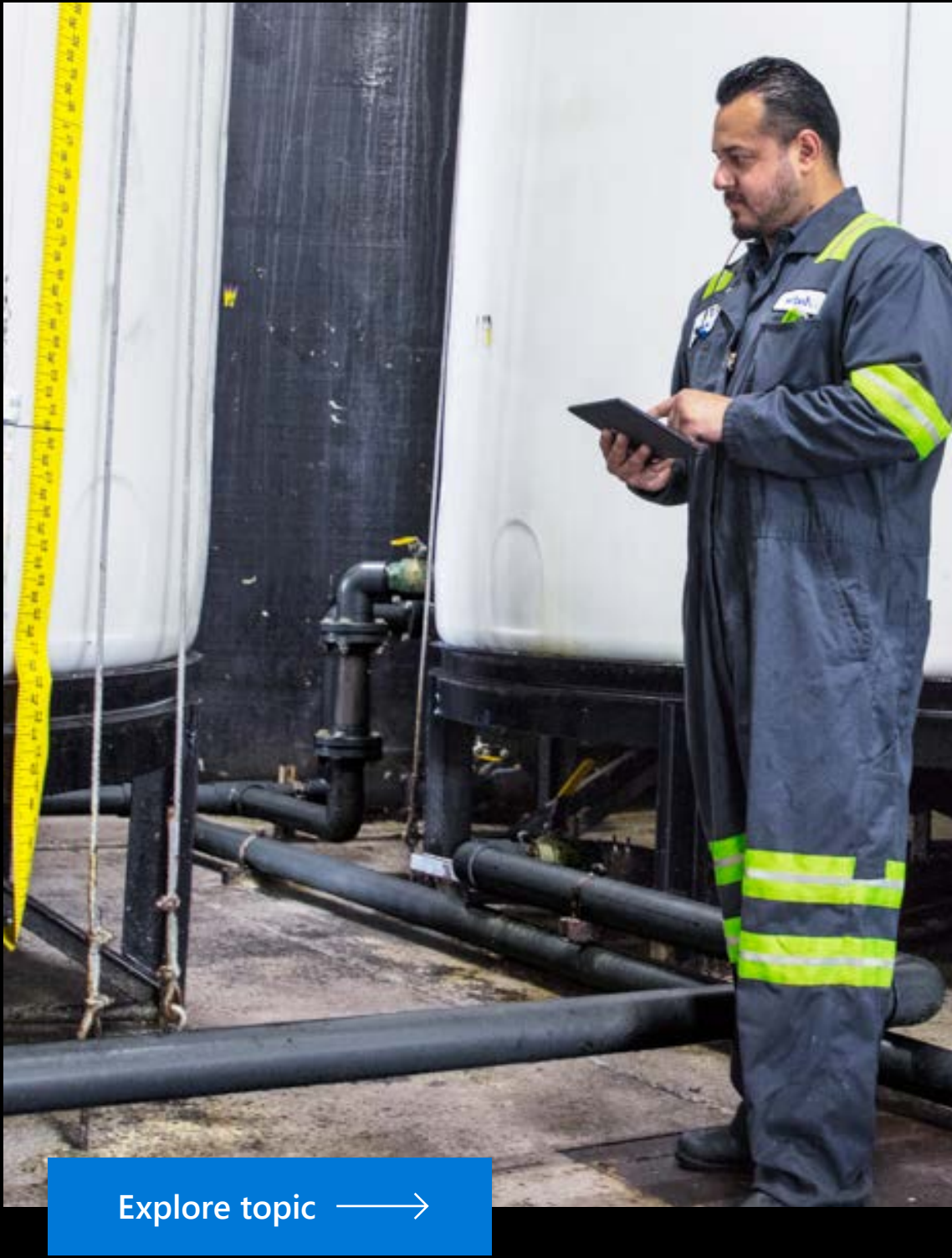
Optimize digital operations

Deliver new services

Reimagine manufacturing

Empower your workforce
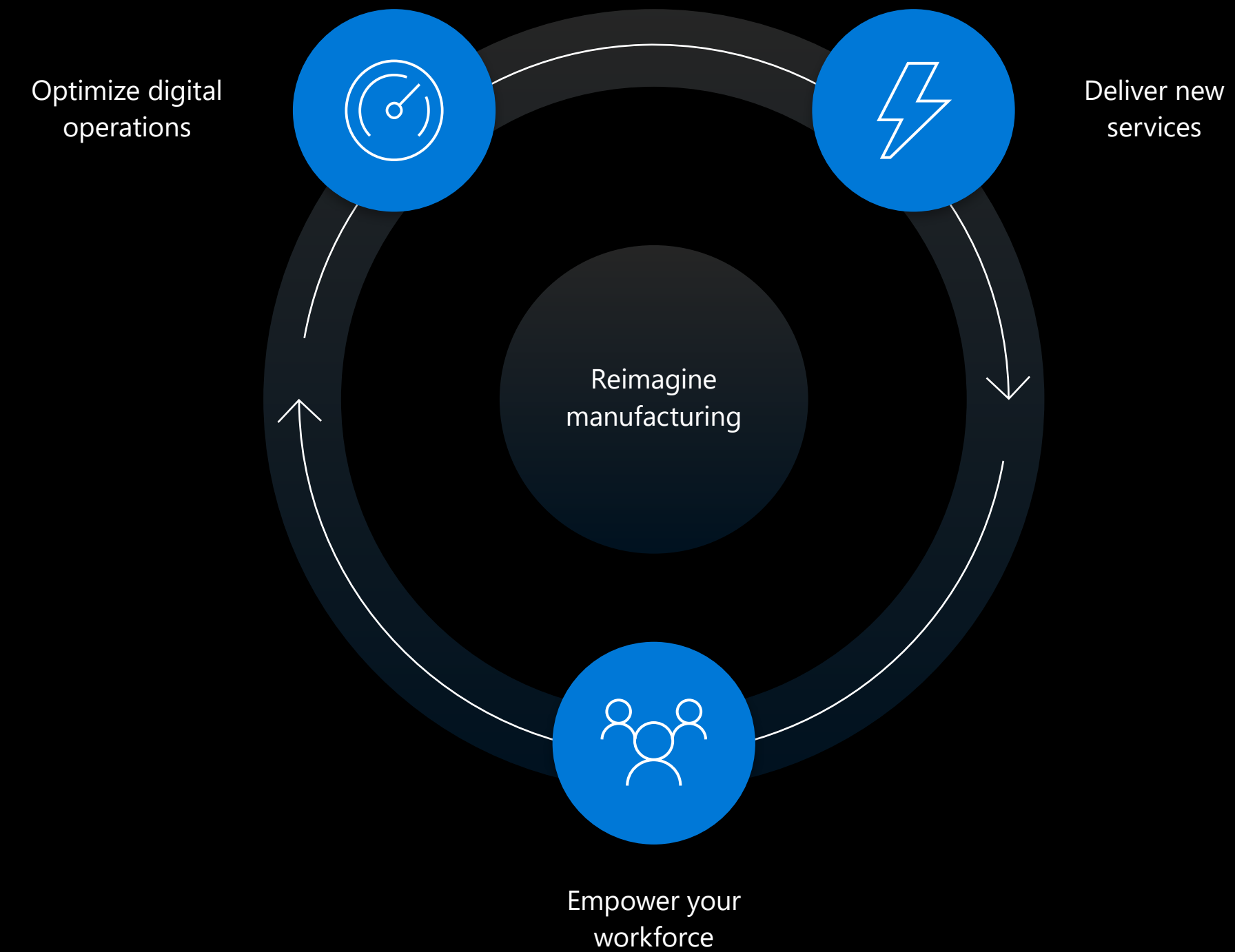
Explore four key transformation topics that can help you stay competitive while meeting changing customer needs

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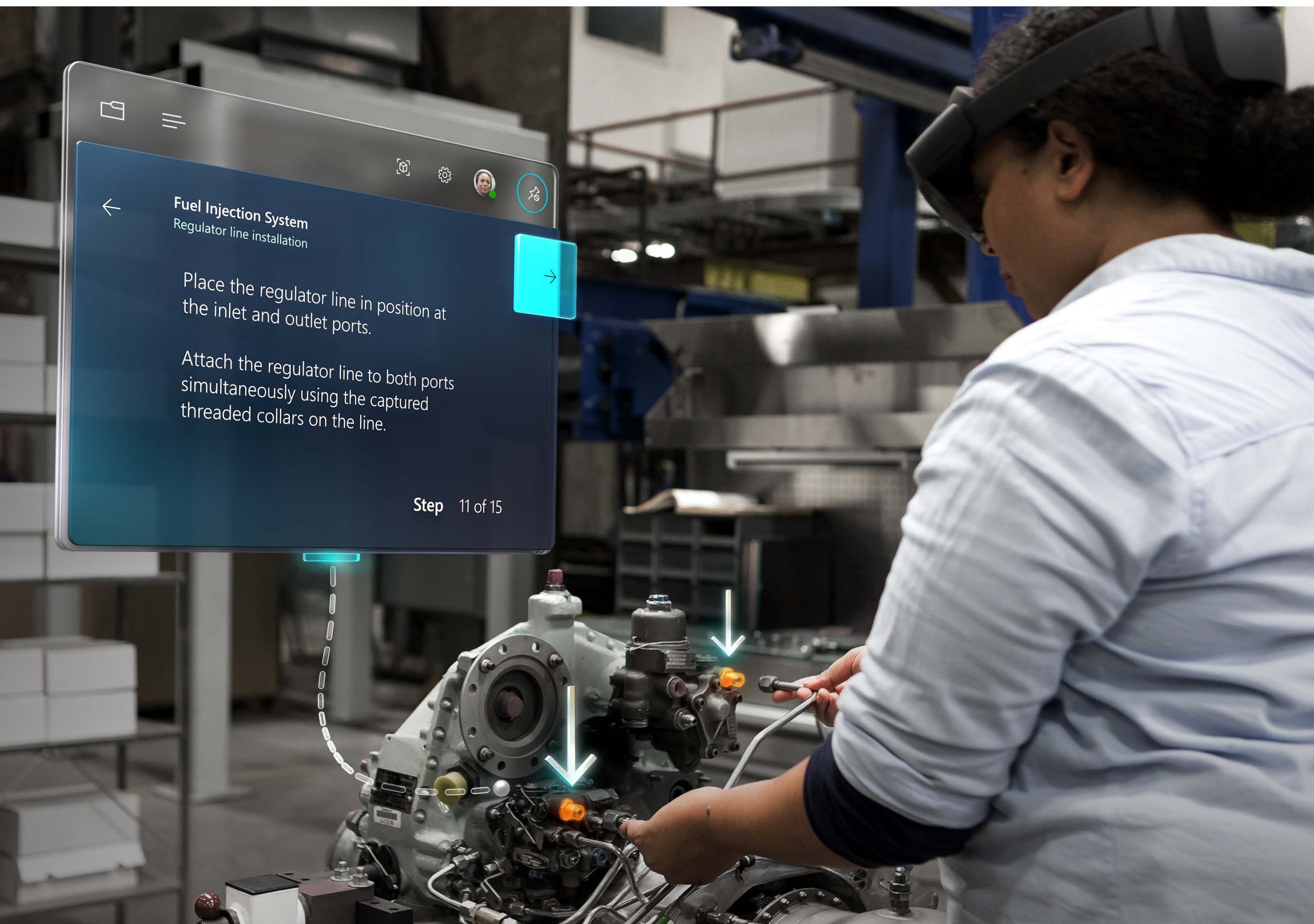
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Explore topic ⟶

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Empower your workforce

Imagine if you could attract, train, and keep an empowered workforce capable of keeping up with your new speed of business.

Address the skills gap to keep up with digital manufacturing

As the manufacturing industry is disrupted by digital changes, the workforce is as well. It's estimated that 75 million jobs will be displaced by automation and 133 million new jobs will be created between 2018 and 2022.[1] This requires new and advanced skill sets and ways to collaborate. You need to attract the next generation of talent while training your veteran employees at the pace of innovation. You'll boost job satisfaction, enhance productivity, and streamline decision making with a fully equipped and empowered workforce. Upskill your existing workforce and accelerate training your new workforce to keep up with this historic change by:

- *Engaging* your workforce by automating the mundane, freeing them up for more creative and strategic endeavors on the front line like engaging with customers and partners

- *Utilizing* AI and mixed-reality (MR) interaction models with robots/cobots to augment employee skills and improve shop floor agility, productivity, and safety

- *Reaching* new levels of safety and cyber/physical security with advanced technologies like ambient intelligence that reduce accidents, malicious incidents, product loss, and brand damage

- *Leveraging* MR and team collaboration capabilities to redefine training and skills transfer to overcome skills gaps and keep pace with increased product and process complexity

- *Enabling* front-line workers to do their best work by unifying devices, data, relationships, and processes in intelligent apps that guide them through best practices and compliance requirements

[1] World Economic Forum. 2018. "The Future of Jobs 2018." September.

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Improving performance with MR

Chevron deployed Microsoft Dynamics 365 Remote Assist and Microsoft HoloLens within its global facilities and is already achieving real, measurable results. The technology is revolutionizing the first-line worker experience and generating a measurable impact on Chevron's bottom line, improving global collaboration performance and speed.

"Being able to use technology to improve our communication makes our lives more efficient and allows us to spend our time on more value-added work."

Katie Will

Designs Engineer
Chevron

Watch the customer story video

So, now what?

Three strategies to empower your workforce

See how you can address the skills gap and keep up with digital manufacturing across your organization.

Connected field service

Equip your technicians with connected smart devices to deliver predictive service and enable proactive engagement throughout the product life cycle.

Read this e-book to learn more about transforming the customer experience with connected field service.
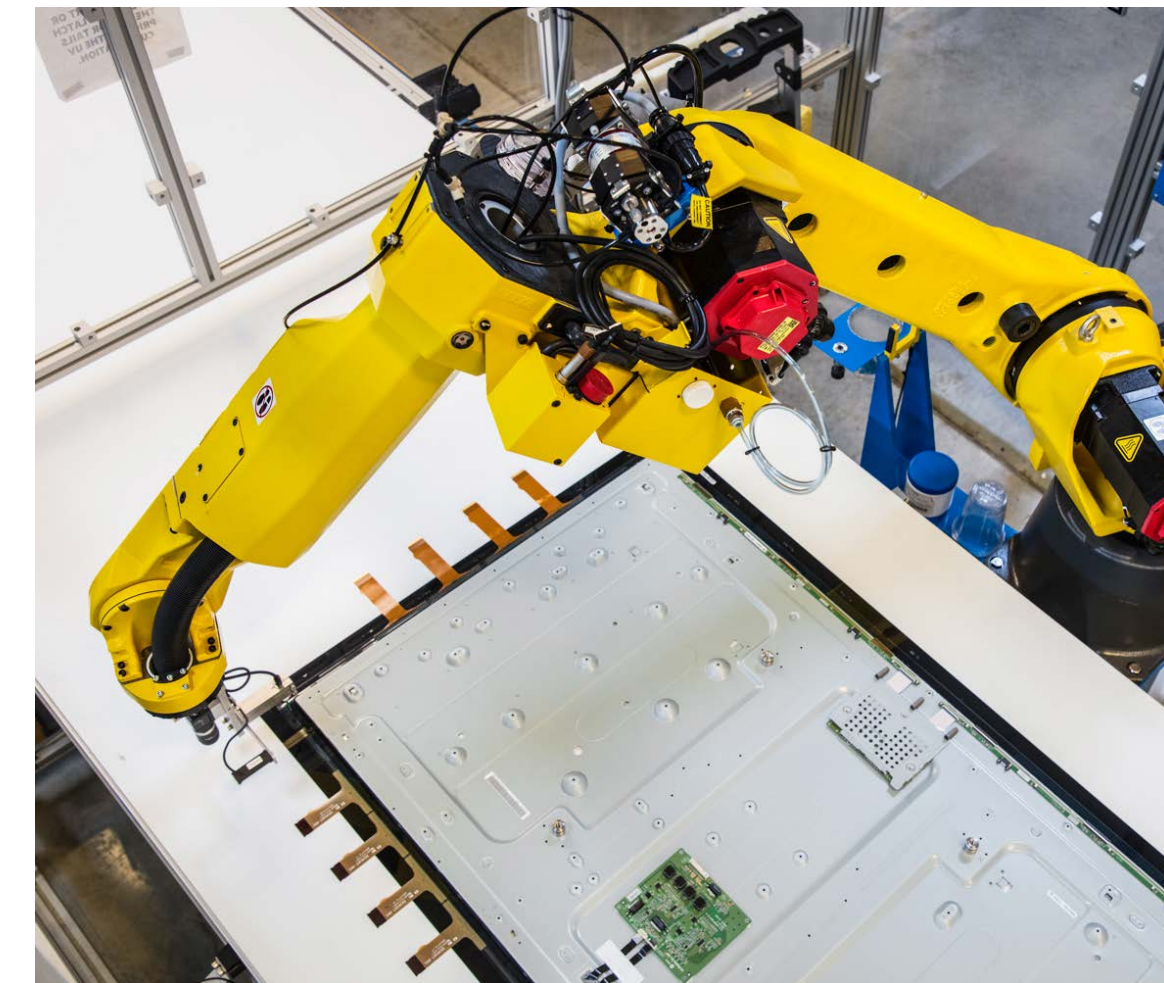
Connected sales and service

Empower your sales and service teams to provide customized experiences to strengthen customer relationships and build brand loyalty.

Learn how to improve customer engagement and profit margins with connected sales and service.

Factory of the future

Connect your employees to devices and processes by using industrial IoT and other smart technology to speed up production.

Read this e-book to learn how to achieve digital excellence in manufacturing with the factory of the future.

Deliver new services

Imagine staying one step ahead of your customers' needs, identifying the best times and processes to refresh parts, supplies, and equipment.

Stay competitive, and exceed customer expectations

Historically, the relationship between a manufacturer and its products ended at the point of sale. Today that's changed, with intelligent products at the edge—from large industrial equipment to spray nozzles used in agricultural irrigation—all connected back to the cloud, creating a digital feedback loop.

Those devices at the edge also provide a new connection to customers, allowing manufacturers to offer better services, such as proactive maintenance and remote monitoring, and generate new revenue streams.

Predictive analytics is the number one AI use case for enterprises across manufacturing.[2] By connecting people to devices using IoT and identifying failure-prevention patterns, manufacturers can reduce waste, maintenance costs, and downtime. Intelligent IoT (made of smart devices) can safely deliver exciting new experiences on a flexible, scalable, and secure cloud framework that can power high-tech business models.

Keep your sellers matching the pace of your complex product and service portfolio to improve customer engagement and profit margins. If you can proactively engage with consumers throughout your product's life cycle, you can gain new insights and create AI-driven assets that target their desired outcomes. By providing enhanced services that deliver immersive experiences you'll differentiate yourself from competitors and cultivate lifetime customers.

Smart-building sweet spot: connecting building data with service technicians

MacDonald-Miller Facility Solutions is using Azure IoT, Dynamics 365 for Field Service, and Power BI to connect and manage their facilities across 10 locations. They've equipped their technicians with tablets and wearables with telepresence capabilities to record their service procedures—giving their customers visibility into what services they are providing them.

"With IoT-enabled Dynamics 365, we learn about—and fix—potential problems before the building maintenance manager or owner even knows they exist."

Bradd Busick

Chief Information Officer
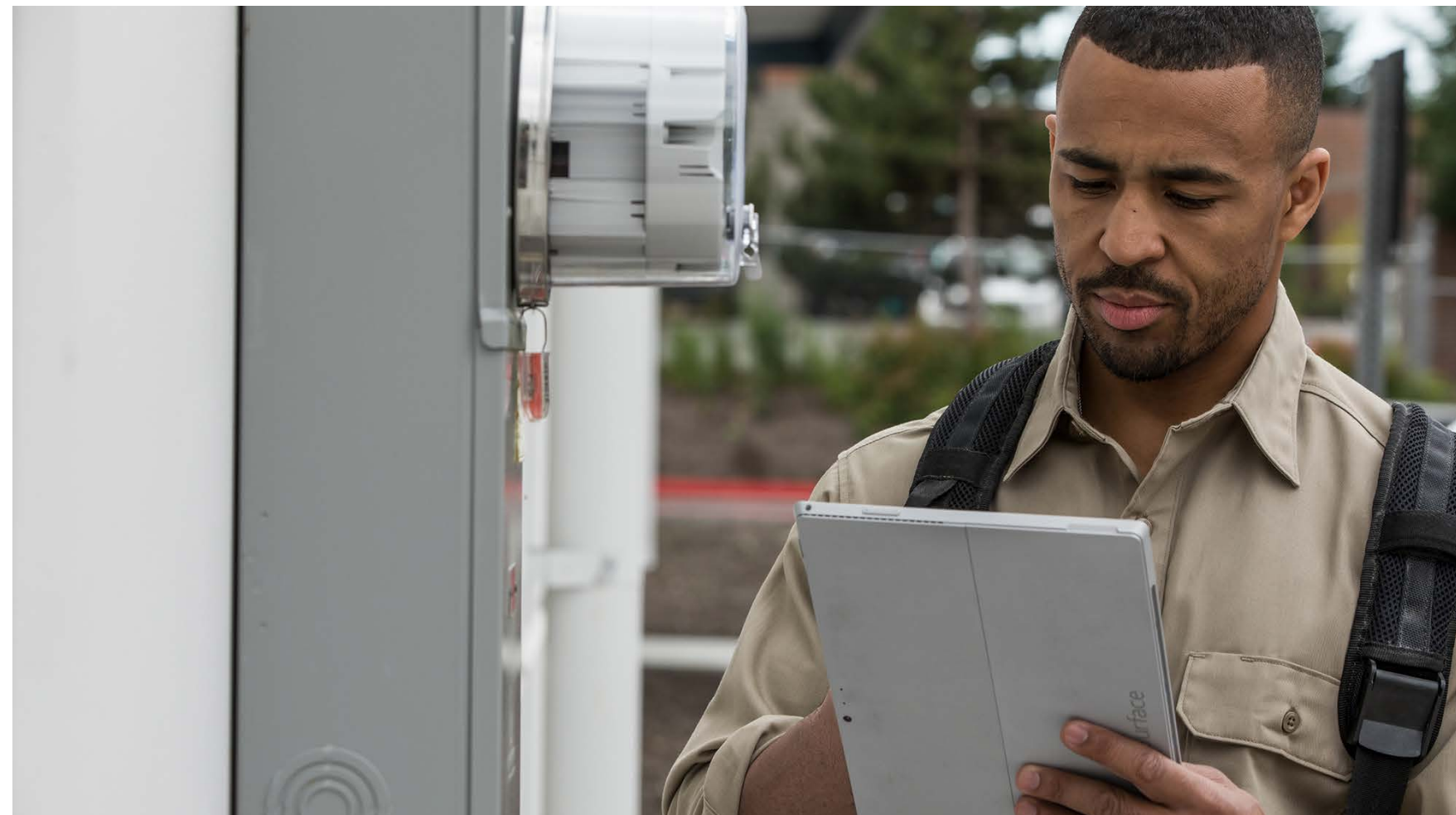MacDonald-Miller Facility Solutions

Read the full customer story

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So, now what?

Two strategies to deliver new services

See how you can create new business value with digital services.

Connected field service

Enable proactive engagement throughout the product life cycle by delivering new services.

Read this e-book to learn more about transforming the customer experience with connected field service.

Connected sales and service

Customize sales and services to strengthen customer relationships and build brand loyalty.

Learn how to improve customer engagement and profit margins with connected sales and service.

Optimize digital operations

Imagine if you could increase the flow of information across your entire business operations, keep your business processes synchronized, and improve your interaction with partners and your supply chain.

Deliver the right product and service at the right time and margin

In today's market full of feature-saturated products and super-competitive prices, manufacturers are exploring ways to generate new business value using digital services to build stronger relationships with customers. 86 percent of buyers will pay more for a better customer experience and greater transparency.[3] The growing need to customize products and services for customers means agile and responsive end-to-end operations is more essential than ever. And getting the right products and services to the right customer at the right time requires integration of digital factories and intelligent supply chains.

[3] Walker, Customers 2020: A Progress Report, Undated

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Modernizing your factory floor can help you create agile and responsive end-to-end operations and provide your customers with customized products and services:

- *Integrate* data from IoT with other product and customer data to create new insights into customers' desired outcomes

- *Generate* data-driven and AI enhanced products and services that differentiate in the new service economy by delivering customer outcomes

- *Increase* revenue and margins by providing a connected sales and services platform that increases productivity and compliance, and can keep up with new product and service offerings

- *Innovate* using digital twins and big compute to get products that customers want to market faster, by enabling more iterations on product, manufacturing, and supply chain designs

- *Engage* manufacturers' customers with differentiated buying experiences that leverage MR and easy to use quote-to-cash processes to increase wins and margins

By embedding AI into your products now, you can supply personalized and intelligent assistance, predictive maintenance, and remote monitoring after your products leave the factory. MR blends the physical and digital worlds, and paired with AI infused insights, you can use MR to visualize products before they're manufactured; this allows you to change how you design, build, sell, and service your products.

Fueling the oil and gas industry with IoT

Rockwell Automation was facing performance and innovation plateaus and needed a service to collect and organize remote equipment sensor data, grant access to real-time insights, supply predictive analytics, and perform preventive maintenance across its global supply chain. Microsoft helped Rockwell Automation do all this using the Azure IoT Platform.

"What we're talking about is delivering a degree of collaboration and visibility unheard of in the oil and gas industry. With sensors, software and the cloud, these disparate assets can become part of a Connected Enterprise, powered at its core by a rich flow of data."

Doug Weber

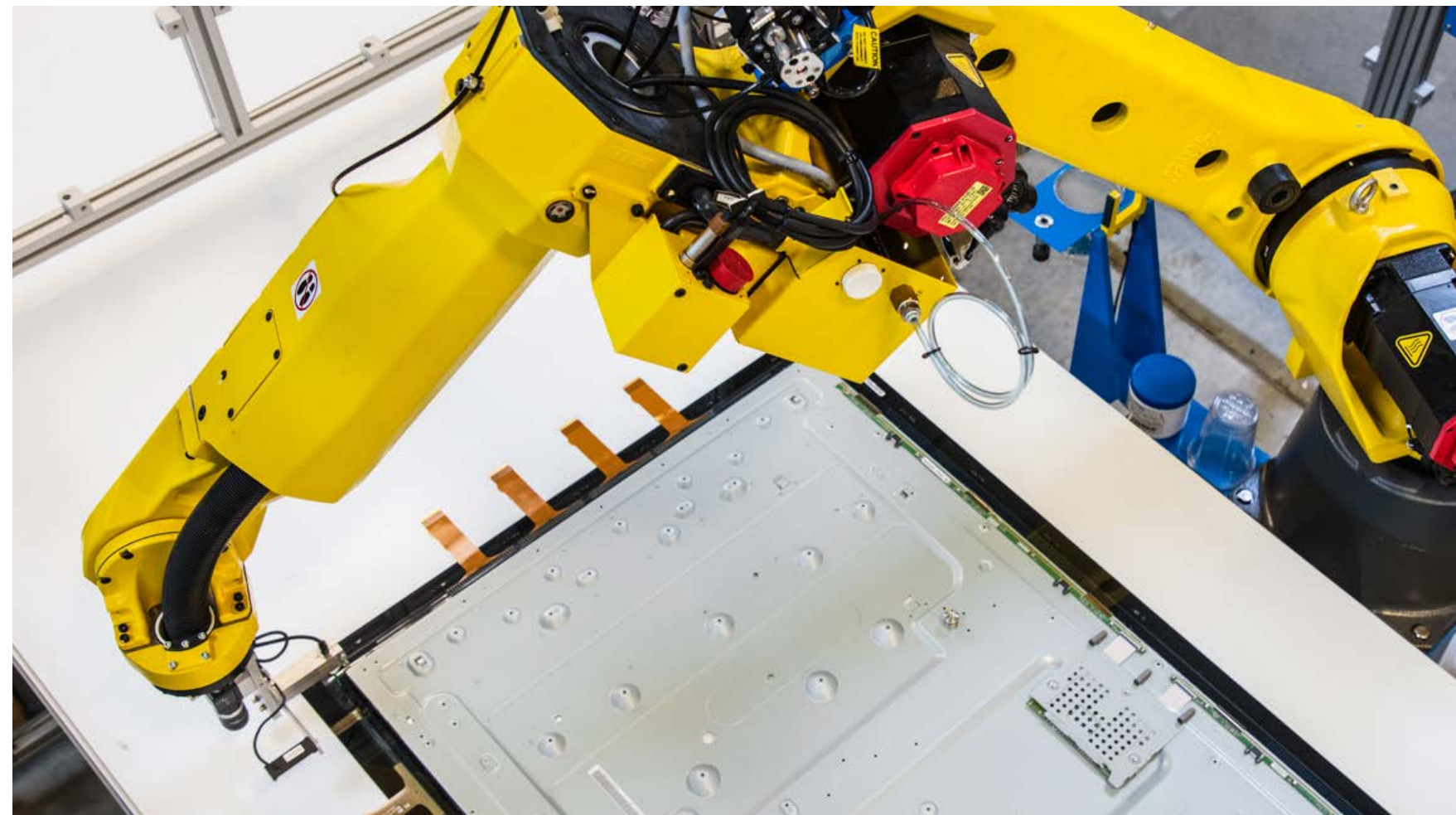Business Manager of Remote Application Monitoring
Rockwell Automation

Read the full customer story

So, now what?

Two strategies to optimize digital operations

See how you can leverage IT and OT to optimize factories and supply chains.

Factory of the future

Speed up production by using industrial IoT and other smart technology to connect your people, devices, and processes.

Read this e-book to learn how to achieve digital excellence in manufacturing with the factory of the future.

Intelligent supply chain

Take advantage of an optimized supply chain to produce the right products, at the right time, for the right price.

Read this blog to learn how to create an intelligent supply chain.

Reimagine manufacturing

Imagine if you could gather user information from products and work collaboratively with a development team to improve products and develop new ones.


Enter new markets and improve sustainability

By 2050, it's expected that manufacturing will need 400 percent more water[4] and agricultural will need a 70 percent increase in agricultural output to feed the world's growing population[5]. All at a time when public awareness has increased about the need to conserve natural resources. For manufacturers this not only presents new business challenges to use resources efficiently and reduce costs, it also presents an unmatched opportunity to generate value because of manufacturing's reach to all sectors of goods, products, and resources.

While making the transformation to intelligent manufacturing, sustainability should be at the forefront. Deliver social and economic impact by taking advantage of AI to conserve energy. Preserve natural resources through sustainable manufacturing practices to decrease supply chain costs and increase brand integrity.

Technologies like digital twins, AI, and IoT can be used to monitor, control, and save water and energy usage to generate a lower footprint. Modern agriculture using these technologies has the power to help yield more crops and ensure food safety, truly serving the greater good.

Feed our growing world by improving agricultural productivity with affordable IoT sensors, machinery, and AI that enable precision farming, and grow the market for manufactured goods.
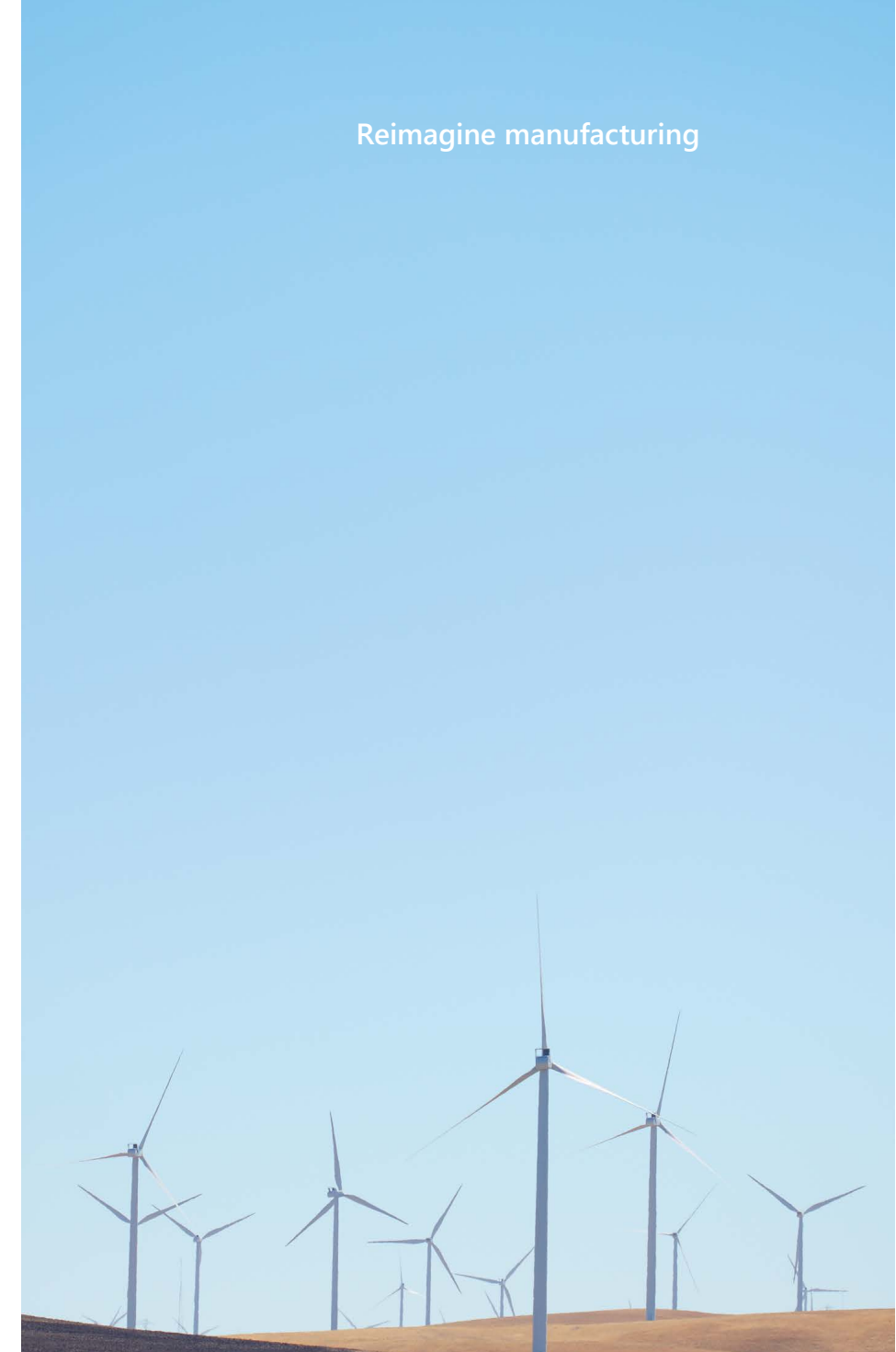
[4] OECD. 2012. Water Outlook to 2050: "The OECD calls for early and strategic action" May.

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[5] Food and Agriculture Organization. 2015. "How to Feed the World in 2050"

Read here

When each drop counts

Partnering with Schneider Electric™, WaterForce (a New Zealand irrigation and water management company) developed SCADAfarm (for supervisory control and data acquisition) on the Azure IoT Platform to digitally upgrade agriculture at Blackhills Farm with remote monitoring and controls and real-time data analytics (like weather).

"Every day I adjust my pivots and pumps for a variety of reasons—shifts in the wind, rain levels, crop requirements or local regulations. Now I can monitor and control my irrigation system easily from my mobile phone, saving me hours of time not spent driving around the farm. I look at our flow meters and sometimes the machine might be saving up to 50 percent of its allocated water use. I can attribute that to the efficient use of SCADAfarm. I wouldn't go back without it."

Craig Blackburn

Owner
Blackhills Farm

Read the full customer story

So, now what?

One strategy to reimagine manufacturing

See how you can innovate with advanced technologies to create a sustainable future.

Connected product innovation

Save on physical resources and increase your innovation speed with digital product and process twins.

Read this whitepaper to learn how to turn your data into fuel for faster product innovation.

Enable your intelligent manufacturing transformation

Microsoft empowers manufacturers to solve today's most pressing issues by arming leaders with the enterprise-grade business tools they need to augment employee skills, develop more sustainable products, and deliver the benefits of intelligent manufacturing to new customers and markets. Start your journey to manufacture a better future.

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Manufacturing a better future

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